IN THE CLAIMS:

Please cancel claims 1-5, 14, and 24 without prejudice, amend claims 6, 11, and 26, and add new claims 27-30 as follows:

1. (Canceled): A method of preparing a surface for electrochemical deposition, comprising:

depositing a barrier layer comprising tantalum using high density plasma physical vapor deposition over the surface to form a high conductance barrier layer having a resistivity of less than about 160 $\mu\Omega$-cm; and

depositing a seed layer over the barrier layer.

2. (Canceled): The method of claim 1, wherein the barrier layer is deposited at a substrate temperature between about 350°C and about 600°C.

3. (Canceled): The method of claim 1, wherein depositing the barrier layer comprises providing a processing pressure between about 20mTorr and about 100 mTorr.

4. (Canceled): The method of claim 1, wherein the barrier layer is deposited at a substrate temperature between about 350°C and about 600°C and at a processing pressure between about 20mTorr and about 100 mTorr.

5. (Canceled): The method of claim 1, wherein the seed layer comprises a copper seed layer.

6. (Currently Amended) A method of forming a high conductance barrier layer, comprising:

depositing a first barrier layer to a thickness between about 50Å and about 250Å over the surface using chemical vapor deposition~~, wherein the first barrier layer~~

~~comprises a material selected from the group consisting of titanium nitride, tungsten and tungsten nitride and combinations thereof~~;

depositing a second barrier layer to a thickness between about 50Å and about 250Å over the first barrier layer using physical vapor deposition, wherein the second barrier layer comprises a material selected from the group consisting of ~~titanium nitride,~~ tantalum and tantalum nitride and combinations thereof; and

wherein the first barrier layer and the second barrier layer form a high conductance barrier layer having a resistivity of less than about 160 $\mu\Omega$-cm.

7. (Original): The method of claim 6, wherein depositing a second barrier comprises depositing the second barrier layer utilizing high density plasma physical vapor deposition.

8. (Original): The method of claim 7, wherein the second barrier layer is deposited at a substrate temperature between about 350°C and about 600°C.

9. (Original): The method of claim 7, wherein the second barrier layer is deposited at a processing pressure between about 20mTorr and about 100 mTorr.

10. (Original): The method of claim 7, wherein the second barrier layer is deposited at a substrate temperature between about 350°C and about 600°C and at a processing pressure between about 20mTorr and about 100 mTorr.

11. (Currently Amended): A method of preparing a surface for electrochemical deposition, comprising:

forming a high conductance barrier layer having a resistivity of less than about 160 $\mu\Omega$-cm on the surface <u>by forming a first barrier layer over the surface using chemical vapor deposition and by forming a second barrier layer over the first barrier layer using physical vapor deposition</u>; and

depositing a <u>copper</u> seed layer over the <u>high conductance</u> barrier layer utilizing high density plasma physical vapor deposition.

12. (Original): The method of claim 11, wherein the seed layer is deposited to a bottom film thickness between about 250Å and about 1,500Å.

13. (Original): The method of claim 12, wherein the seed layer is deposited to a sidewall film thickness less than about 250Å.

14. (Canceled): The method of claim 11, wherein the seed layer comprises a copper seed layer.

15. (Original): The method of claim 11, wherein the high conductance barrier layer comprises a material selected from the group consisting of tungsten, tungsten nitride, titanium and titanium nitride, and combinations thereof.

16. (Original): The method of claim 11, wherein the high conductance barrier layer comprises a multi-layered stack of one or more materials selected from the group consisting of tungsten, tungsten nitride, titanium and titanium nitride, and combinations thereof.

17. (Original): The method of claim 11, wherein forming a high conductance barrier layer comprises:

depositing a layer comprising tantalum; and

annealing the layer at a temperature between about 350°C and about 600°C for between about 30 seconds and about 30 minutes.

18. (Original): The method of claim 17, wherein annealing the layer comprises annealing the layer at a temperature between about 450°C and about 500°C.

19. (Original): The method of claim 11, wherein forming a high conductance barrier layer comprises depositing a layer comprising tantalum at a deposition temperature between about 350°C and about 600°C.

20. (Original): The method of claim 11, wherein forming a high conductance barrier layer comprises depositing a layer comprising tantalum utilizing high density plasma physical vapor deposition.

21. (Original): The method of claim 20, wherein the layer is deposited at a substrate temperature between about 350°C and about 600°C.

22. (Original): The method of claim 20, wherein the layer is deposited at a processing pressure between about 20mTorr and about 100 mTorr.

23. (Original): The method of claim 20, wherein the layer is deposited at a substrate temperature between about 350°C and about 600°C and at a processing pressure between about 20mTorr and about 100 mTorr.

24. (Canceled) The method of claim 11, wherein forming a high conductance barrier layer comprises:

forming a first barrier layer over the surface using chemical vapor deposition; and

forming a second barrier layer over the first barrier layer using physical vapor deposition.

25. (Original): The method of claim 24, wherein the first barrier layer comprises a material selected from the group consisting of titanium nitride, tungsten, and tungsten nitride and combinations thereof.

26. (Currently Amended): The method of claim ~~24~~ 11, wherein the second barrier layer comprises a material selected from the group consisting of ~~titanium nitride,~~ tantalum, and tantalum nitride and combinations thereof.

27. (New): A method of preparing a surface for electrochemical deposition, comprising:

depositing a first barrier layer by providing one or more gases to chemically react over the surface;

depositing a second barrier layer by physical vapor deposition, wherein the barrier second barrier layer comprises a material selected from the group consisting of tantalum and tantalum nitride; and

depositing a copper seed layer over the second barrier layer utilizing high density plasma physical vapor deposition.

28. (New): The method of claim 27, wherein the method is performed utilizing an integrated system platform.

29. (New): The method of claim 27, wherein the second barrier layer is deposited by high density plasma physical vapor deposition.

30. (New): The method of claim 27, wherein the second barrier layer is deposited by hollow cathode sputtering.